

UTC-515

**Intel® Atom™ D525 Processor-
based Ubiquitous Touch
Computer with 15.6" TFT LCD**

Trusted ePlatform Services

ADVANTECH

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For technical support and service, please visit our support website at:

<http://support.advantech.com>

This manual is for the UTC-515.

Declaration of Conformity

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning! *Any changes or modifications made to the equipment which are not expressly approved by the relevant standards authority could void your authority to operate the equipment.*



Packing List

Before you begin installing UTC-515, please make sure that the following materials have been shipped:

- UTC-515 series
- Accessories for UTC-515
 - Warranty card
 - DC 12V/ 60W power Adapter
 - 1 x Utility CD
 - A packet of screws

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Ordering information

Part No.	Description
UTC-515-RE	15.6" Atom D525 Based fanless UTC with Resi.T/S. 2GB RAM
UTC-515-RXPE0E	UTC-515-RE with 2GB Memory/160GHDD/XPE
1702002605	Power cord 2P FRANCE 10A/16A 220V 1.83M 90D
1702002600	Power Cord 3P UL/CSA(USA) 125V 10A 1.83M 180D
1700000596	Power Cord (China) CCC,10A 250V, 3P 1830mm

Technical Support and Assistance

1. Visit the Advantech web site at <http://support.advantech.com> where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Warning! *Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.*



- Warning!**
1. *Input voltage rated 12 V, 5 A*
 2. *Use a 3 V @ 195 mA lithium battery*
 3. *Packing: please carry the unit with both hands, handle with care*
 4. *Maintenance: to properly maintain and clean the surfaces, use only approved products or clean with a dry applicator*
 5. *CompactFlash: Turn off power before inserting or removing CompactFlash storage card.*



Contact information:

Our European representative: Advantech Europe GmbH Kolberger StraÙe 7
D-40599 Düsseldorf, Germany
Tel: 49-211-97477350
Fax: 49-211-97477300

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 15. The power cord or plug is damaged.
 16. Liquid has penetrated into the equipment.
 17. The equipment has been exposed to moisture.
 18. The equipment does not work well, or you cannot get it to work according to the user's manual.
 19. The equipment has been dropped and damaged.
 20. The equipment has obvious signs of breakage.
21. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.**
22. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**
23. The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

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Chapter 1

General Information

This chapter gives background information on the UTC-515.

Sections include:

- Introduction
- General Specifications
- LCD Specifications
- Dimensions

1.1 Introduction

The UTC-515 is an Intel low-power Intel® Atom™ D525 processor computer that is designed to serve as a interactive self-service terminal and as a multimedia computer. It is a PC-based system with 15.6" TFT LCD display, on-board PCIe Ethernet controller, one COM port and VGA connector. With a built in internal Compact flash slot (for CF card), one SATA connector for HDD and an mini PCIe expansion socket, the UTC-515 is a compact and user-friendly multi-function computer. In addition, its "fit anywhere" design makes it very flexible and able to be used in many different kinds of installations. It can be wall mounted or stood upright on a desktop.

For system integrators, this simple, complete, compact and highly integrated multimedia system lets you easily build UTC-515 into your applications. Common industrial applications include self-transaction & health care, information kiosk & interactive signage. UTC-515 is a reliable, cost-effective solution for your application requirements.

1.2 General Specifications

1.2.1 General

- **Dimensions:** 384.6 mm (L) x 236.5 mm (H) x 40 mm (D)
- **Weight:** 5 kg
- **Power supply:** ATX type Input Voltage: +12 V_{DC}, 5 A
- **Power adaptor:** AC/DC (Standard Build in) 12 V, 60 W
Input voltage: 100 ~ 240 V_{AC}
Output voltage: 12 V @ 5 A
- **Disk drive housing:** Space for one 2.5" SATA HDD
- **Front panel:** IP54/NEMA4 compliant

1.2.2 Standard PC functions

- **CPU:** Intel® Atom™ D525 at 1.8 GHz with 1MB L2 cache
- **BIOS:** AMI 16 MB Flash BIOS via SPI
- **System chipset:** Intel® Atom™ D525 + Intel ICH8M
- **2nd level cache:** 512 KB x 2
- **System memory:** Supports DDR3 800 MHz up to 4 GB for D525 (SODIMM Socket: 204-pin SODIMM socket type *1)
- **Serial ports:** 1* external COM
- **Universal serial bus (USB) port:** Supports up to 2 USB V2.0
- **Mini PCI-E bus expansion slot:** Accepts one mini PCI-E device (wireless LAN card)
- **Solid State Disk:** Supports CompactFlash card type I/II (True IDE mode)
- **Watchdog timer:** Single chip Watchdog 255-level interval timer, setup by software
- **Power management:** Full ACPI (Advanced Configuration and Power Interface) 2.0 Supports S0, S1, S3, S4, S5

1.2.3 VGA Interface

- **Embedded Gen3.5+ GFX Core**
 - DVMT 3.0 (Dynamic Video Memory Technology)
 - DirectX* 9 compliant Pixel Shader 2.0
 - Intel® Clear Video Technology
- **Chipset:** The GPU Contains a refresh of the third generation graphics core

- **Memory Size:** Up to 224 MB of dynamic video memory allocation
- **Interface:** VGA
- **Display mode:**
 - CRT: Intel® Atom™ D525 up to 2048 x 1536

1.2.4 Audio function

- **Audio:** High Definition Audio (HD), 1 W x 2 Speakers
- Optional - Audio output function

1.2.5 LAN Function

- **Chipset:** LAN1 Intel 82567V, LAN2 Intel 82583V
- **Speed:** 1000 Mbps /Interface: 2 x RJ45
- **Wake-on-LAN:** Supports Wake-on-LAN function with ATX power control
- Supports LAN teaming (in Fault Tolerance)

1.2.6 Touch screen (Optional)

Type	Analog Resistive 5 wires
Resolution	1024 x 1024
Light Transmission	80%
Controller	USB interface
Power Consumption	<5 V @ 60 mA
Software Driver	Supports Windows XP/ 7/ XPE
Durability (touches in a lifetime)	36 million

1.2.7 Environment

- **Operating temperature:** 0 ~ 40° C (32 ~ 104° F)
- **Storage temperature:** -20 ~ 60° C
- **Relative humidity:** 10 ~ 95% @ 40° C (non-condensing)
- **Shock:** 10 G peak acceleration (11 ms duration)
- **Certification:** EMC: CE, FCC, BSMI, VCCI.
Safety: UL 60950, CB, CCC, BSMI
- **Vibration:** 5 ~ 500 Hz 0.5 G RMS Random vibration
- **VESA Support:** 75 x 75 mm (Suggest screws type- M4 x 5)

Caution! Use suitable mounting apparatus to avoid risk of injury.



- Supports landscape and portrait screen mode

Note! Please follow suggestion to install UTC-515 Models.





1.2.8 Setup Boot up timer:

- A) If we will use Windows OS, after set up boot up timer under BIOS menu, we need to wait system boot into OS and then shut down the UTC-515 properly. Then the UTC-515 can boot up automatically at the timing we set.
- B) If we will use DOS, after set up boot up timer under BIOS menu, we need to wait until we see C:/ and then turn off the UTC-515 by power switch. Then the UTC-515 can boot up automatically at the timing we set.

1.3 LCD Specifications

- **Display type:** 15.6" TFT LCD
- **Max. resolution:** 1366 x 768
- **Colors:** 262 K
- **Dot size (mm):** 248.25(H) X 248.25 (V)
- **Viewing angle:** 170 ° / 160°
- **Luminance:** 300 cd/m²
- ***VR control:** Brightness could be modified through BIOS

Note! *The color LCD display installed in the UTC-515 is high-quality and reliable. However, it may contain a few defective pixels which do not always illuminate. With current technology, it is impossible to completely eliminate defective pixels. Advantech is actively working to improve this technology.*



1.4 Optional modules

- **Memory:** DDR3 800 MHz up to 4 GB for D525 (SODIMM Socket: 204-pin SODIMM socket type *1)
- **HDD:** 2.5" SATA HDD
- **SSD:** Supports CompactFlash® Card TYPE I/II
- **Operating System:** Windows XP/ XPE/ 7/ Embedded Standard 7
- **Touchscreen:** Analog resistive (UTC-515-RE/ UTC-515-R1E Optional - PCT solution)
- **Power cord:** 1702002600 (US) 1702002605 (Europe)
- **Wireless LAN Module:**

Part No.	Description
968EMW0038	Wireless IEEE 802.11 b/g/n AW-NE785 PCIE
1750006010 (Cable)	
9680001060	2.0dBi Dipole short antenna
1750003222	5.0dBi Dipole long antenna

- **Peripherals for UTC-500 series**

Part No.	Description
UTC-P01-A0E	2M Camera Module For UTC-5XX (USB connection)
UTC-P02-A0E	Magnet Strip Reader For UTC-5XX (USB connection)
UTC-P03-A0E	RFID Reader For UTC-5XX (USB connection)
UTC-P06-A0E	Smart Card Reader For UTC-5XX (USB connection)
UTC-P07-A0E	2D Barcode Reader For UTC-5XX (USB Connection)
UTC-P21-A0E	4 in 1 Modules Barcode reader + RFID + Card reader + MSR

- **Installation Accessory**

Part No.	Description
UTC-520-STAND1E	Desktop Stand for UTC-520

1.5 Dimensions

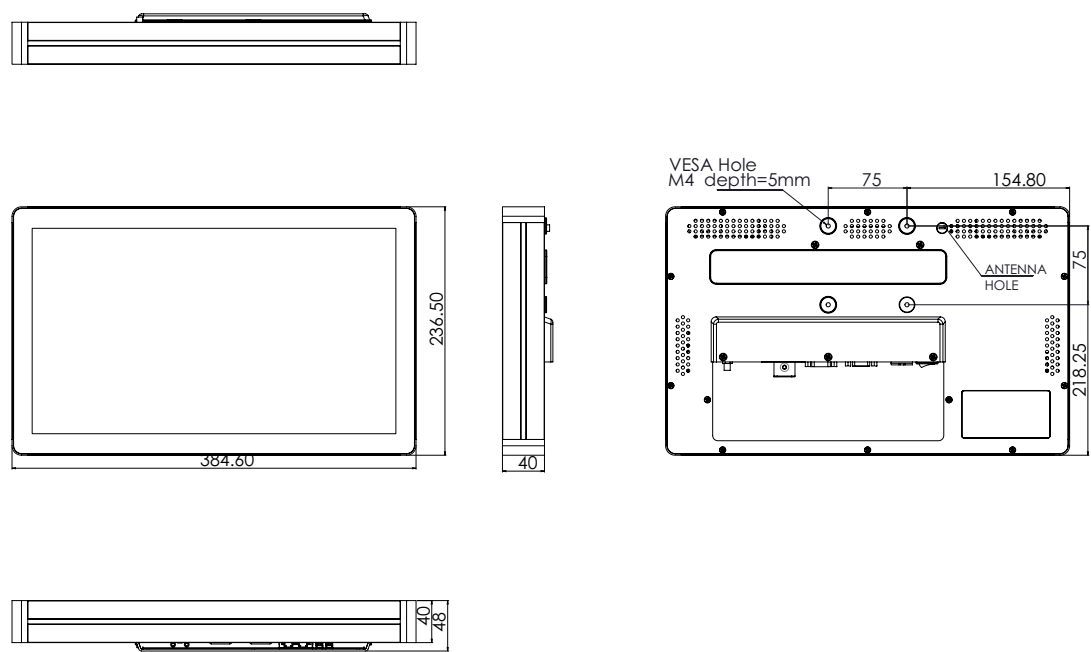


Figure 1.1 Dimensions of UTC-515

Chapter 2

System Setup

This chapter details system setup on the UTC-515.

Sections include:

- A Quick Tour of the UTC-515
- Installation procedures
- Running the BIOS Setup Program
- Installing System Software

2.1 A Quick Tour of the UTC-515

Before you start to set up the UTC-515, take a moment to become familiar with the locations and purposes of the controls, drives, connectors and ports, which are illustrated in the figures below.

When you place the UTC-515 upright on the desktop, its front panel appears as shown in Figure 2.1.

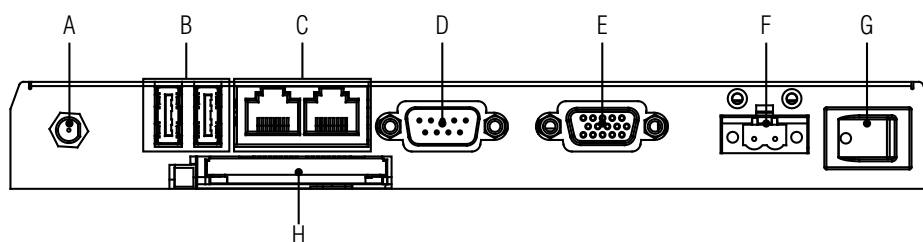


Figure 2.1 Front view of UTC-515

When you turn the UTC-515 around and look at its rear cover, you will find the I/O section as shown in Fig. 2.2. (The I/O section includes various I/O ports, including serial ports, Ethernet ports, USB ports, VGA, and Compact Flash slot.)



Figure 2.2 Rear view of UTC-515



A. Antenna/ Audio Line-out (option)

B. USB 2.0 x 2

C. Gigabit LAN x 2

D. COM port

E. VGA

F. DC Inlet

G. Power Switch

H. Compact Flash slot

2.2 Installation Procedures

2.2.1 Connecting the power cord

The UTC-515 can be powered by a DC electrical outlet. Be sure to always handle the power cords by holding the plug ends only. Please follow the Figure 2.5 to connect the male plug of the power cord to the DC inlet of the UTC-515.

2.2.2 Connecting the keyboard or mouse

Before you start the computer, please connect keyboard port on the I/O section of the UTC-515.

2.2.3 Switching on the power

When you look at the rear side of the UTC-515, you will see the power switch as shown in Figure 2.2.



Figure 2.3 Connect the power cord to the DC inlet

2.3 Running the BIOS Setup Program

Your UTC-515 is likely to have been properly set up and configured by your dealer prior to delivery. You may still find it necessary to use the UTC-515's BIOS (Basic Input-Output System) setup program to change system configuration information, such as the current date and time or your type of hard drive. The setup program is stored in read-only memory (ROM). It can be accessed either when you turn on or reset the UTC-515, by pressing the "Del" key on your keyboard immediately after powering on the computer.

The settings you specify with the setup program are recorded in a special area of memory called CMOS RAM. This memory is backed up by a battery so that it will not be erased when you turn off or reset the system. Whenever you turn on the power, the system reads the settings stored in CMOS RAM and compares them to the equipment check conducted during the power on self-test (POST). If an error occurs, an error message will be displayed on screen, and you will be prompted to run the setup program.

2.4 Installing System Software

Recent releases of operating systems from major vendors include setup programs which load automatically and guide you through hard disk preparation and operating system installation. The guidelines below will help you determine the steps necessary to install your operating system on the UTC-515 hard drive.

Note! *Some distributors and system integrators may have already pre-installed system software prior to shipment of your UTC-515.*



Installing software requires an installed HDD. Software can be loaded in the UTC-515 using any of four methods:

2.4.1 Method 1: Ethernet

You can use the Ethernet port to download software to the HDD.

2.4.2 Method 2: External USB CD-ROM

If required, insert your operating system's installation or setup diskette into the diskette drive until the release button pops out.

The BIOS of UTC-515 supports system boot-up directly from the CD-ROM drive. You may also insert your system installation CD-ROM into the CD-ROM drive.

Power on your UTC-515 or reset the system by pressing the "Ctrl+Alt+Del" keys simultaneously. The UTC-515 will automatically load the operating system from the diskette or CD-ROM.

If you are presented with the opening screen of a setup or installation program, follow the instructions on screen. The setup program will guide you through preparation of your hard drive, and installation of the operating system. If you are presented with an operating system command prompt, such as A:\>, then you must partition and format your hard drive, and manually copy the operating system files to it. Refer to your operating system user manual for instructions on partitioning and formatting a hard drive.

2.5 Installing the Drivers

After installing your system software, you will be able to set up the Ethernet, XGA, audio, and touchscreen functions. All drivers are stored in a CD-ROM disc entitled "Drivers and Utilities" which can be found in your accessory box.

The various drivers and utilities in the CD-ROM disc have their own text files which helps users install the drivers and understand their functions. These files are a very useful supplement to the information in this manual.

Note! *The drivers and utilities used for the UTC-515 are subject to change without notice.*



If in doubt, check Advantech's website or contact our application engineers for the latest information regarding drivers and utilities.

Chapter 3

Hardware Install and Upgrades

This chapter details installing the UTC-515 hardware.

Sections include:

- Overview of Hardware Installation and Upgrading
- Installing the 2.5" Hard Disk Drive (HDD)
- Installing the Compact Flash
- Installing the WLAN

3.1 Introduction

The UTC-515 consists of a PC-based computer that is housed in an Aluminum extrusion. You can install a HDD, DRAM, and Compact Flash by removing the rear cover. Any maintenance or hardware upgrades can be easily completed after removing the rear cover.

Warning! Do not remove the rear cover until you have verified that no power is flowing within the UTC-515. Power must be switched off and the power cord must be unplugged. Every time you service the UTC-515, you should be aware of this.



3.2 Installing the 2.5" Hard Disk Drive (HDD)

You can attach one Serial Advanced Technology Attachment (SATA) hard disk drive to the UTC-515's internal controller. The SATA controller supports faster data transfer and allows the SATA hard drive to exceed 150 MB. The following are instructions for installation:

1. Detach and remove the rear cover.
2. Place the HDD in the metal bracket, and tighten the screws (see Figure 3.1).
3. The HDD cable (SATA 7P+1*5P-2.5/SATA(15+7)P) is next to the metal brace. Connect the HDD cable to the motherboard (CN3/CN5). Plug the other end of the cable into the SATA hard drive.
4. Put the rear cover on and tighten the screws.

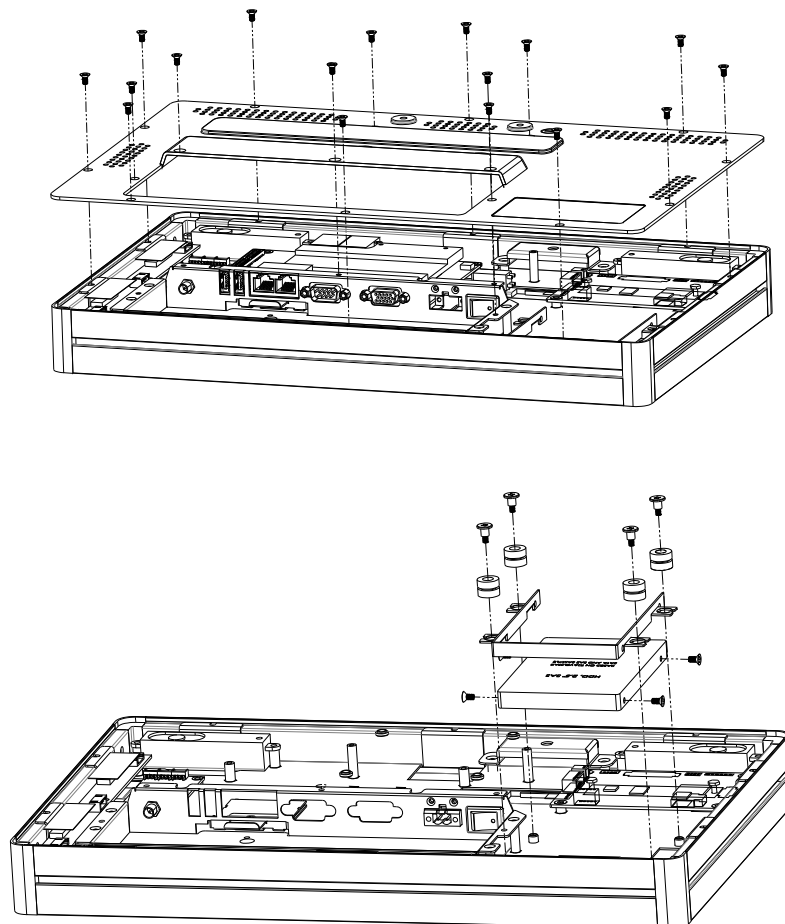


Figure 3.1 Installing primary 2.5" HDD

3.3 Installing the Compact Flash card

1. Please follow the Compact Flash card assembly as in the following diagram.
(Please notice the direction of the CF Card)

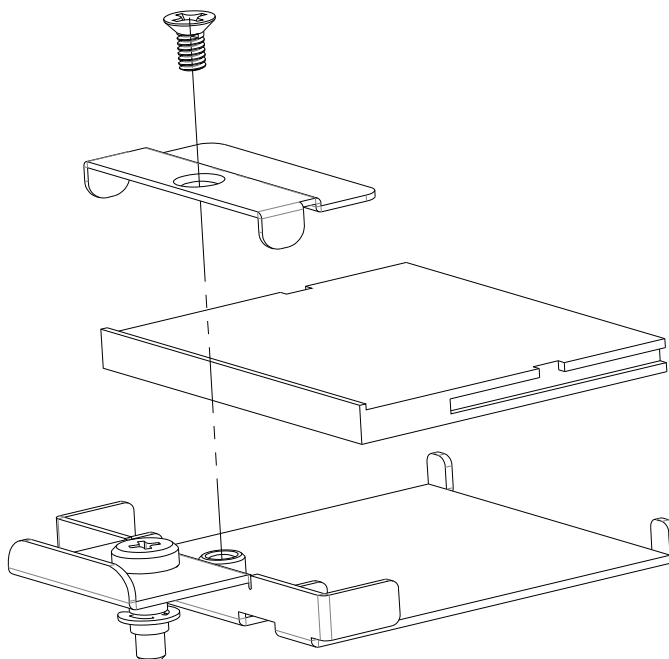


Figure 3.2 Installing the Compact Flash card

3.4 Installing the WLAN

Reserve two locations for the external Antenna. One is at the IO port, the other is at the rear cover. Customers can choose based on different applications.

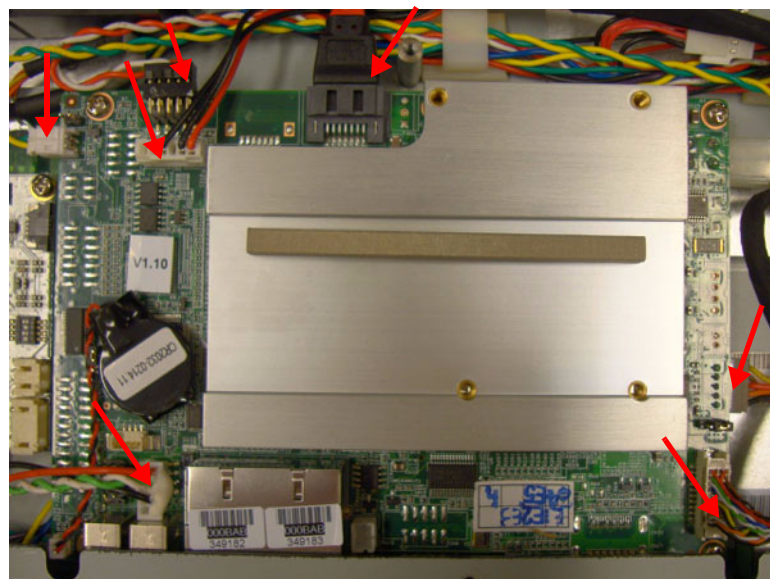
1. Remove 17 pcs screws of back cover.



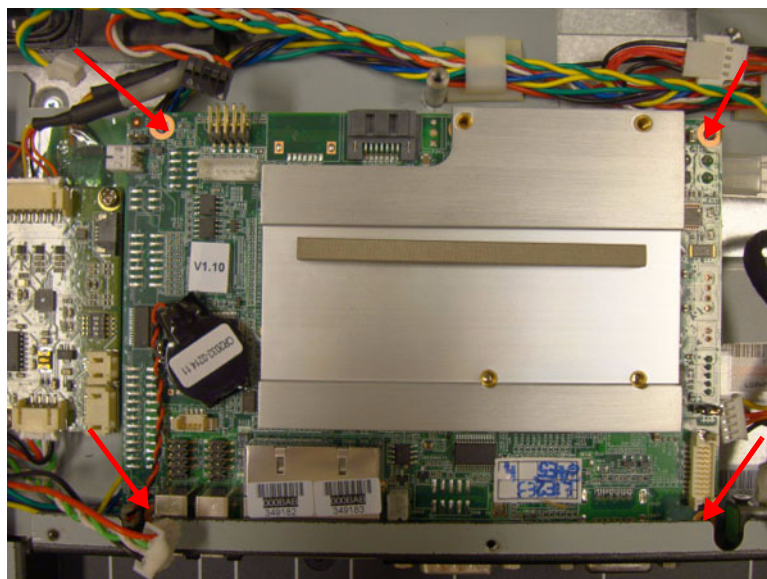
2. Remove the "hole cover" on back cover with a slot screwdriver.



3. Remove connectors on the M/B.



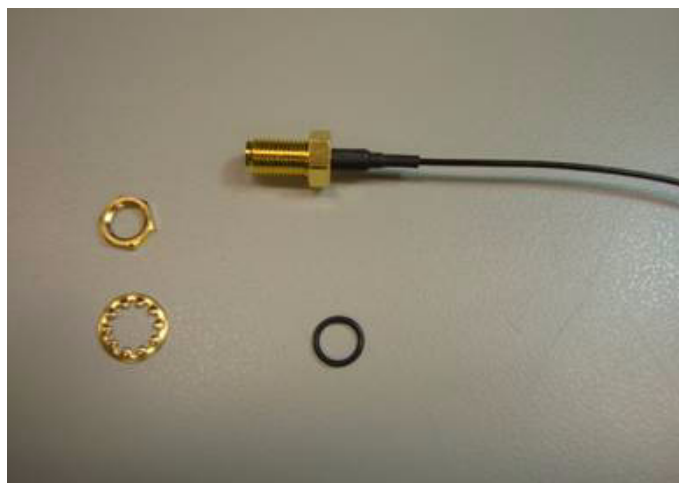
4. Remove 4 screws on M/B.



5. Take the M/B then remove the DC-in cable.



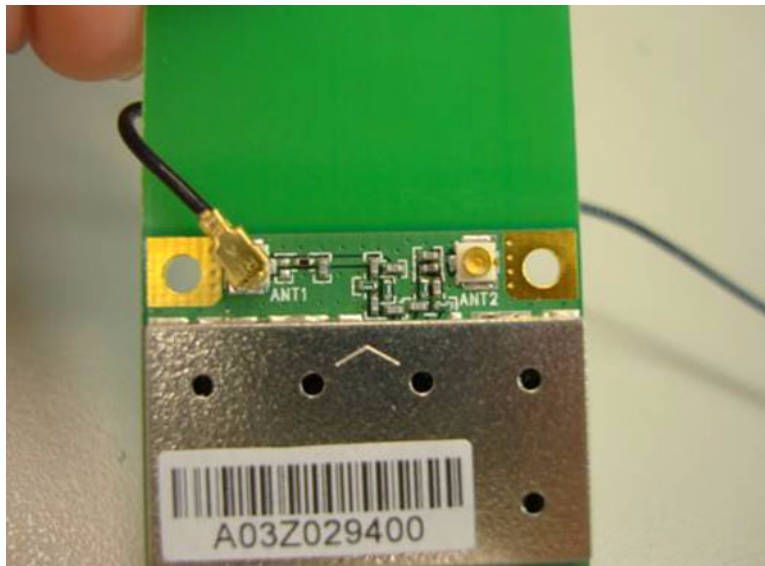
6. Coaxial cable (Advantech P/N: 1750006010)



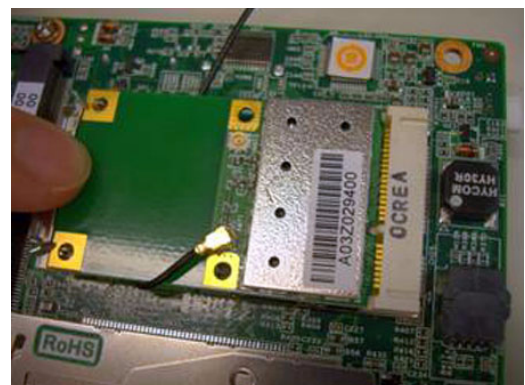
7. Put the black rubber gasket in SMA side first.



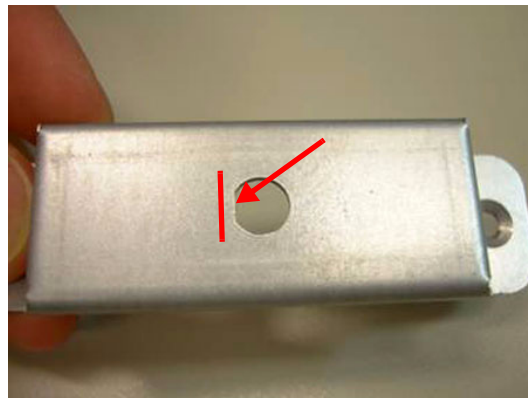
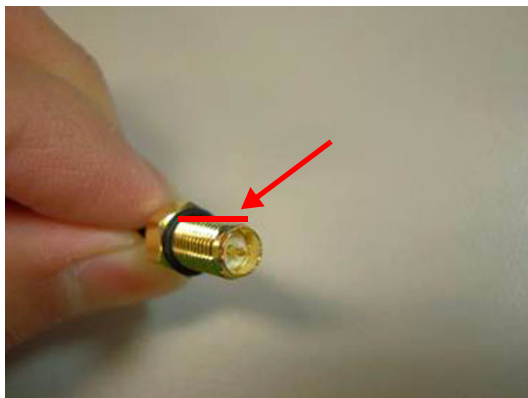
8. Connect the coaxial cable to "ANT1" on the WLAN card.



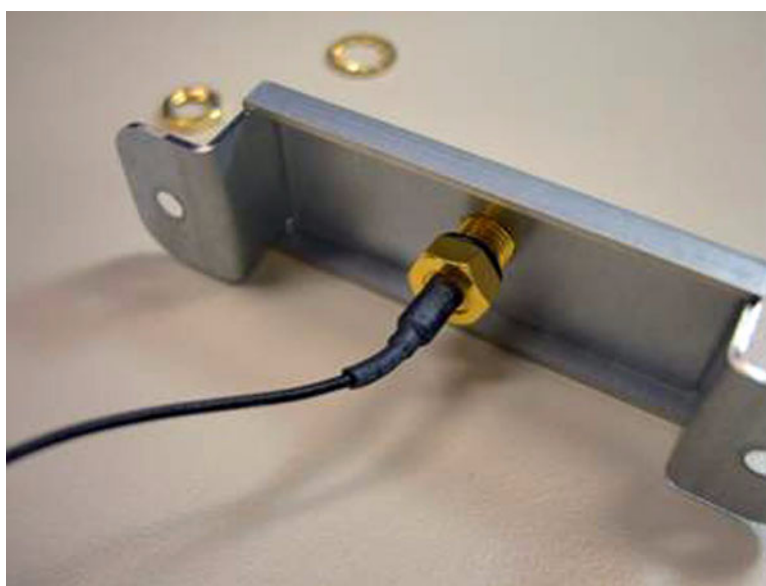
9. Install the WLAN card on M/B bottom side.



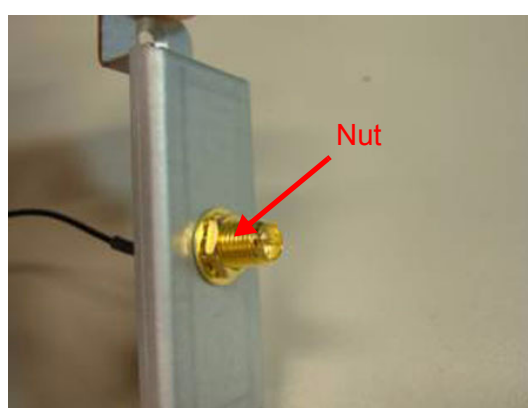
10. Find the smooth side of the circle.



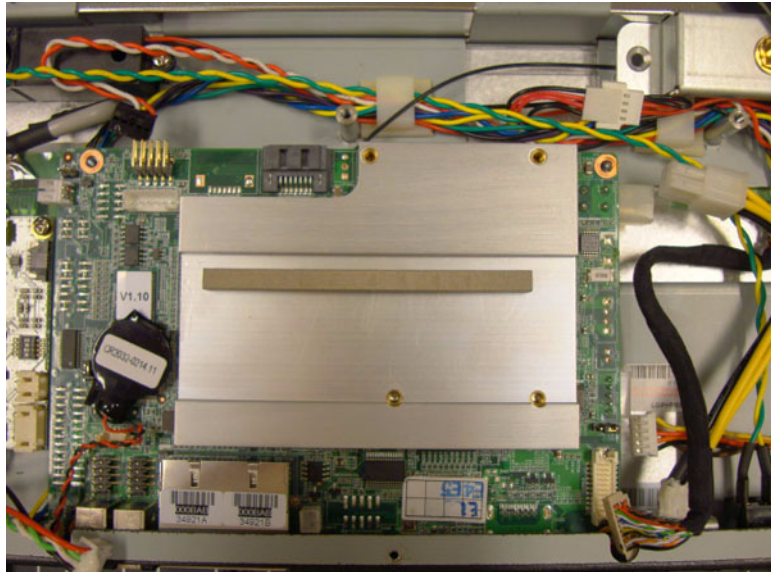
11. Install the cable into antenna bracket.



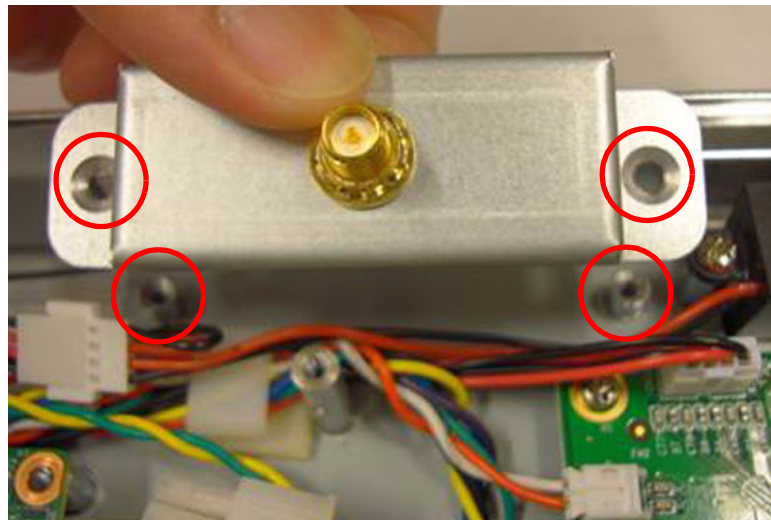
12. Install the washer & nut then screw in tight.



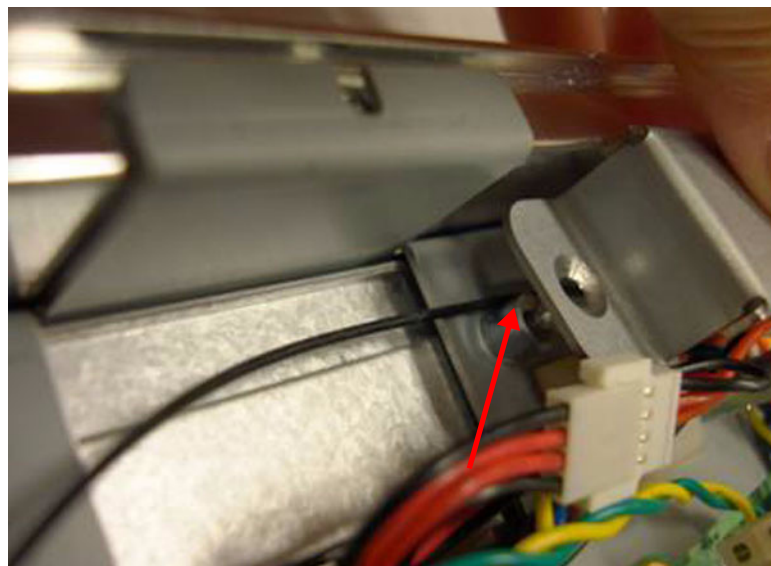
13. Put the M/B back and the 4 screws on the M/B.

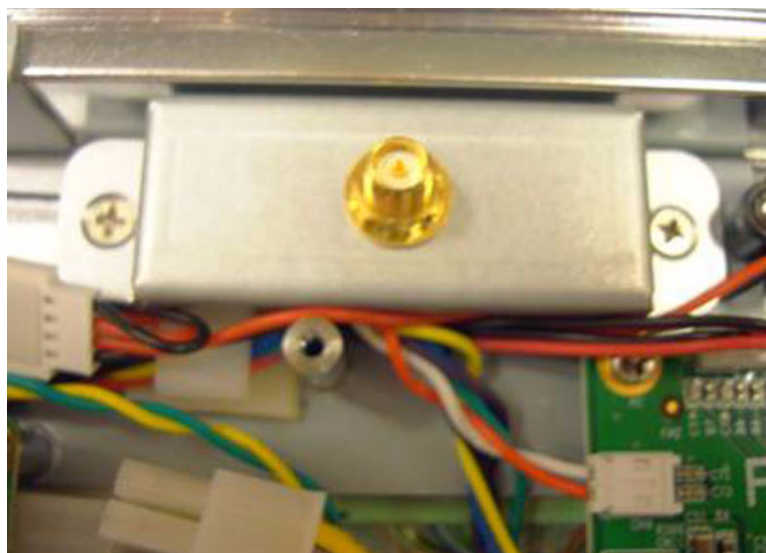


14. Put the antenna bracket on the stand and insert the 2 screws

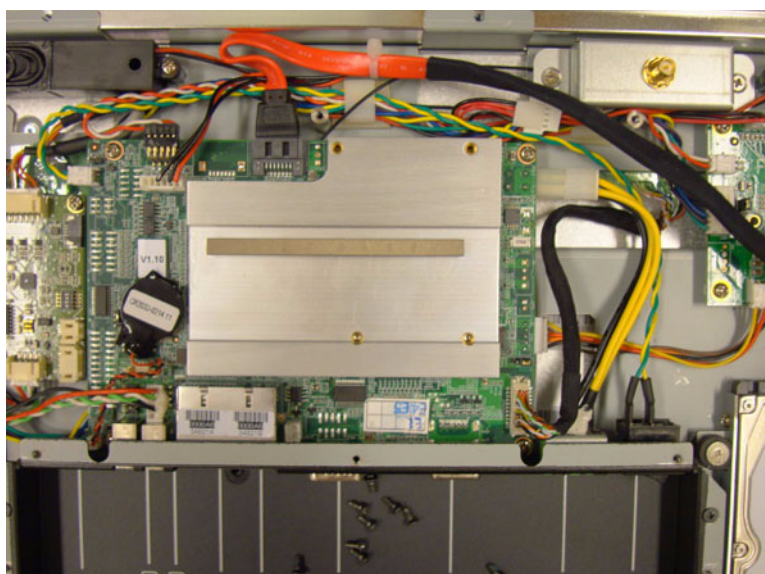


15. Caution! -Do not let the antenna wire go between the stand & bracket.





16. Assemble all the connectors back.



17. Replace the 17 screws on the back cover.



18. Assemble the Antenna.
UTC-515 with the 5.0dBi dipole long antenna (Advantech P/N: 1750003222)



UTC-515 with the 2.0dBi dipole short antenna (Advantech P/N: 9680001060)



Chapter 4

Jumper Settings and Connectors

This chapter tells how to set up the UTC-515 hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all the safety precautions before you begin the installation procedures.

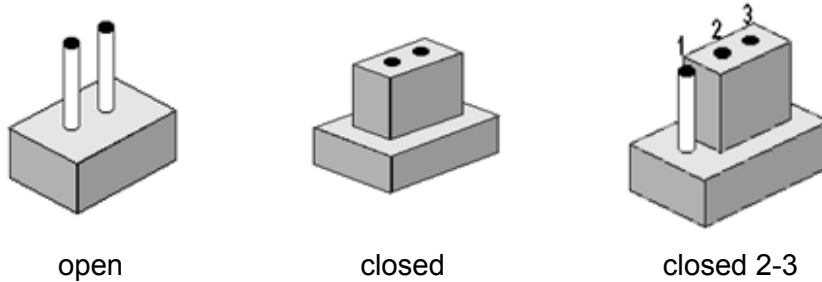
Sections include:

- Jumpers and Connectors
- CMOS Clear for External RTC (J5)
- COM Port Interface
- VGA Interface
- Watchdog Timer Configuration

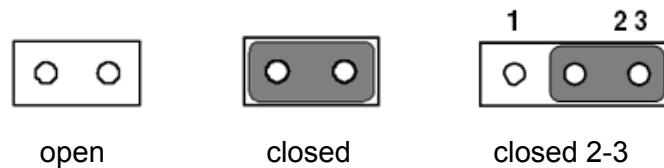
4.1 Jumpers and Connectors

4.1.1 Setting jumpers

You can configure your UTC-515 to match the needs of your application by setting jumpers. A jumper is the simplest kind of electrical switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To 'close' a jumper, you connect the pins with the clip. To 'open' a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either pins 1 and 2 or pins 2 and 3.



The jumper settings are schematically depicted in this manual as follows:.



A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

4.1.2 Jumpers and connectors

The motherboard of the UTC-515 has a number of jumpers and connectors that allow you to configure your system to suit your applications. The table below lists the function of each of the board's jumpers.

Table 4.1: Jumpers and Connector functions

Label	Function
CN1	Audio
CN3	SATA
CN5	SATA Power
CN6	12V Power Input
CN11	SMBus
CN13	Inverter Power Output
CN14	Internal USB
CN15	Internal USB
CN16	24-bit LVDS Panel
CN18/CN19	LAN1 & LAN2
CN20	Power Switch
CN23	Reset
CN24	External USB
CN25	External USB
CN26	COM1
CN27	VGA
CN28	Mini PCIe lock
CN29	Mini PCIe slot
CN30	DDR3 SODIMM
CN31	BIOS Socket
CN32	CF

4.1.3 Locating jumpers and connectors

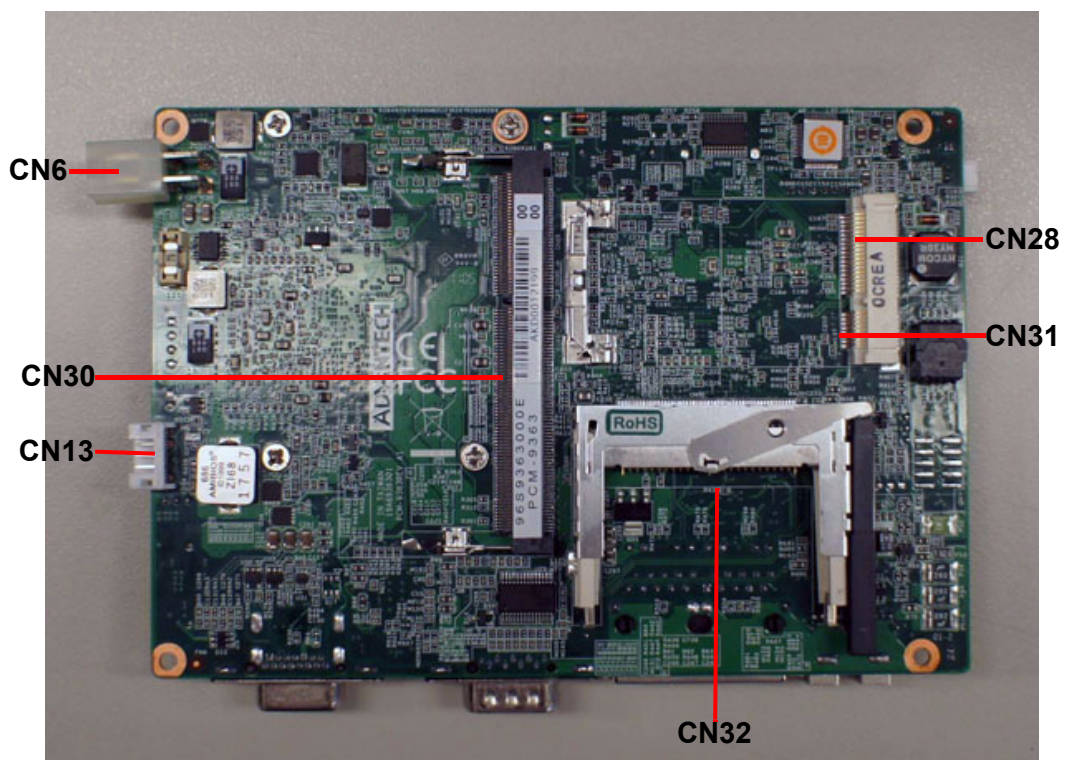
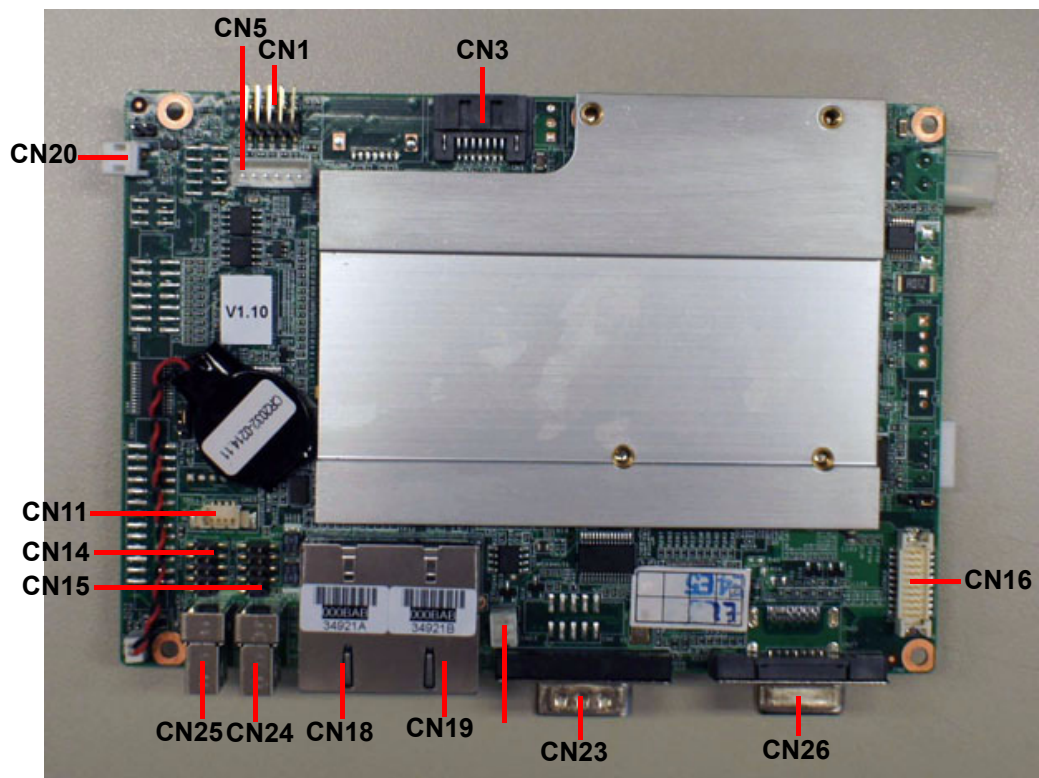


Figure 4.1 Jumpers and Connectors on the UTC-515 motherboard

4.2 Jumpers

4.2.1 Jumper list

Table 4.2: Jumper List

J2	COM2 Setting
J3	AT / ATX Power SEL
J4	Clear CMOS
J5	Panel Voltage SEL

4.2.2 Jumper Settings

Table 4.3: J2: COM2 Setting

Part Number	1653003260
Footprint	HD_3x2P_79
Description	PIN HEADER 3*2P 180D(M) 2.0mm SMD SQUARE PIN
Setting	Function
(1-2)*	RS232
(3-4)	RS485
(5-6)	RS422

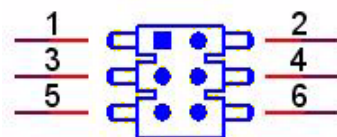


Table 4.4: J3: AT / ATX Power SEL

Part Number	1653002101
Footprint	HD_2x1P_79_D
Description	PIN HEADER 2*1P 180D(M)SQUARE 2.0mm DIP W/O Pb
Setting	Function
(1-2)	AT Power SEL
EMPTY	ATX Power

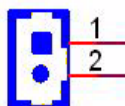
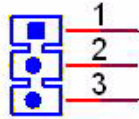
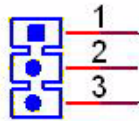


Table 4.5: J4: Clear COMS

Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3*1P 180D(M) 2.0mm DIP SQUARE W/O Pb
Setting	Function
(1-2)*	Normal
(2-3)	Clear CMOS

**Table 4.6: J5: PAN VOL SEL**

Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3*1P 180D(M) 2.0mm DIP SQUARE W/O Pb
Setting	Function
(1-2)*	+5V
(2-3)	+3V



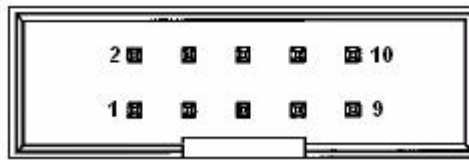
Appendix **A**

I/O Pin Assignments

A.1 PIN Assignments

Table A.1: CN1: Audio

Part Number	1653205260
Footprint	HD_5x2P_79_BOX
Description	BOX HEADER SMD 5*2 180D (M) 2.0mm
Pin	Pin Name
1	LOUTR
2	LINR
3	GND
4	GND
5	LOUTL
6	LINL
7	GND
8	GND
9	MIC1R
10	MIC1L



Matching Cable: 1703100152

Table A.2: CN3: SATA

Part Number	1654002320
Footprint	FOX_LD1107V-S33T5
Description	Serial ATA 7P 1.27 90D(M) SMD LD1107V-S33T5
Pin	Pin Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

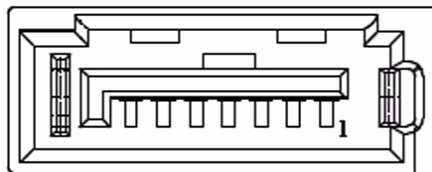
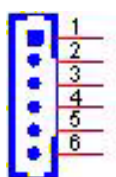


Table A.3: CN5: SATA HDD Power

Part Number	1655306020
Footprint	WHL6V-2M
Description	WAFER BOX 2.0mm 6P 180D(M) W/LOCK
Pin	Pin Name
1	+5V
2	GND
3	NC
4	GND
5	NC
6	NC

**Table A.4: CN6: 12 V Power Input**

Part Number	1655404090
Footprint	ATXCON-2X2-42
Description	ATX PWR CONN. 2*2P 180D 4.2mm 24W4310-04S10-01T
Pin	Pin Name
1	+12 V
2	+12 V
3	GND
4	GND

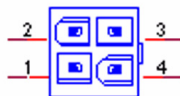
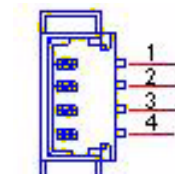


Table A.5: CN11: SMBus

Part Number	1655904020
Footprint	FPC4V-125M
Description	Wafer SMT 1.25mmS/T type 4P 180D(M) 85205-04001
Pin	Pin Name
1	GND
2	SMB_DAT
3	SMB_CLK
4	+5V

**Table A.6: CN13: Inverter Power Output**

Part Number	1655000453
Footprint	WHL5V-2M-24W1140
Description	WAFER BOX 2.0mm 5P 180D(M) DIP WO/pb JIH VEI
Pin	Pin Name
1	+12V
2	GND
3	ENABKL
4	VBR
5	+5V

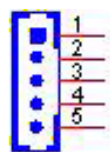
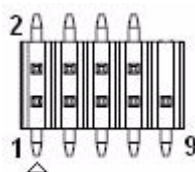


Table A.7: CN14: Internal USB

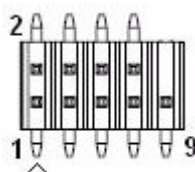
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2*5P 180D(M) 2.0mm SMD IDIOT-PROOF
Pin	Pin Name
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



Matching Cable: 1703100121

Table A.8: CN15: Internal USB

Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2*5P 180D(M) 2.0mm SMD IDIOT-PROOF
Pin	Pin Name
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



Matching Cable: 1703100121

Table A.9: CN16: 18 or 24 bits LVDS Panel

Part Number	1653910261
Footprint	SPH10X2
Description	*CONN. SMD 10*2P 180D(M)DF13-20DP-1.25V(91) HRS
Pin	Pin Name
1	GND
2	GND
3	LVDS0_D0+
4	NC
5	LVDS0_D0-
6	NC
7	LVDS0_D1+
8	NC
9	LVDS0_D1-
10	NC
11	LVDS0_D2+
12	NC
13	LVDS0_D2-
14	NC
15	LVDS0_CLK+
16	LVDS0_z_D3+
17	LVDS0_CLK-
18	LVDS0_z_D3-
19	+5V or +3.3V
20	+5V or +3.3V

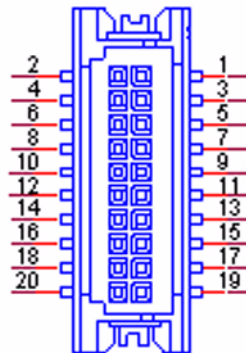
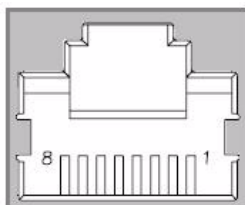
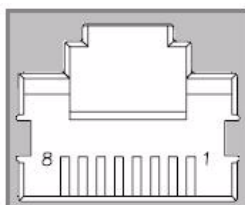


Table A.10: CN18: LAN1

Part Number	1652002996
Footprint	RJ45_14P_RTA-195AAK1A
Description	Phone Jack RJ45 14P 90D(M) DIP RTA-195AAK1A
Pin	Pin Name

**Table A.11: CN19: LAN2**

Part Number	1652002996
Footprint	RJ45_14P_RTA-195AAK1A
Description	Phone Jack RJ45 14P 90D(M) DIP RTA-195AAK1A
Pin	Pin Name

**Table A.12: CN20: Power Switch (Low Active)**

Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 180D(M) 2.0mm W/Lock
Pin	Pin Name
1	PSIN
2	GND

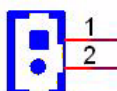


Table A.13: CN22: HDMI (Optional)

CN22	HDMI
Part Number	1654009225
Footprint	HDMI_19P_QJ51193-FFD4-4F
Description	HDMI Conn 19P 0.5mm 90D(M) SMD QJ51193-FFB4-7F
Pin	Pin Name
1	HDMI_D2+
2	GND
3	HDMI_D2-
4	HDMI_D1+
5	GND
6	HDMI_D1-
7	HDMI_D0+
8	GND
9	HDMI_D0-
10	HDMI_CLK+
11	GND
12	HDMI_CLK-
13	HDMI_z_CEC
14	NC
15	HDMI_SCL
16	HDMI_SDA
17	GND
18	+V5_HDMI
19	HDMI_z_DET

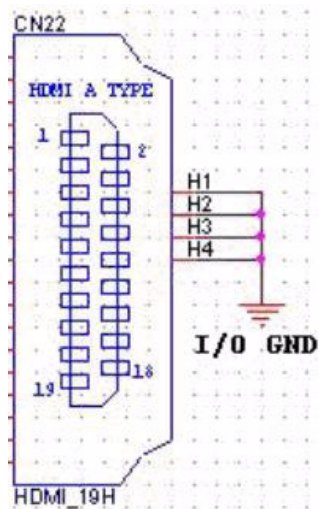
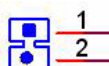


Table A.14: CN23: Reset

Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 180D(M) 2.0mm W/Lock
Pin	Pin Name
1	RESET#
2	GND

**Table A.15: CN24: External USB**

Part Number	1654904105
Footprint	USB-V-4A
Description	USB CON. 4P 90D(F) DIP A TYPE RoHS
Pin	Pin Name
1	+5V
2	D-
3	D+
4	GND



Table A.16: CN25: External USB

Part Number	1654904105
Footprint	USB-V-4A
Description	USB CON. 4P 90D(F) DIP A TYPE RoHS
Pin	Pin Name
1	+5V
2	D-
3	D+
4	GND

**Table A.17: CN26: COM1**

Part Number	1654000056
Footprint	DBCOM-VM5MS
Description	D-SUB CON. 9P 90D(M)DIP 070241MR009S200ZU SUYIN
Pin	Pin Name
1	DCD#
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#

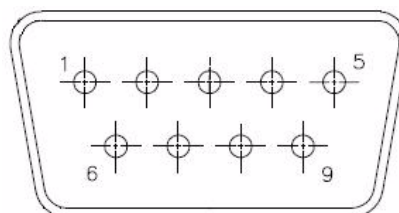


Table A.18: CN27: VGA

Part Number	1654000055
Footprint	DBVGA-VF5MS
Description	D-SUB Conn. 15P 90D(F) DIP 070242FR015S200ZU
Pin	Pin Name
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	DDAT
13	HSYNC
14	VSYNC
15	DCLK

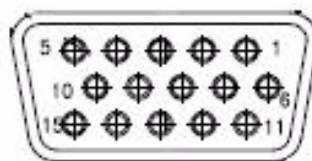


Table A.19: CN28: Mini PCIE lock

Part Number	1654002539
Footprint	FOX_AS0B226-S68K7F HOLDER
Description	MINI PCI Express LATCH 52P 90D SMD 6.8mm
Pin	Pin Name

**Table A.20: CN29: Mini PCIE slot**

Part Number	1654002538
Footprint	FOX_AS0B226-S68K7F
Description	MINI PCI express 52P 90D SMD H=6.8mm
Pin	Pin Name
1	WAKE#
2	+3.3V or +3.3VSB
3	NC
4	GND
5	NC
6	+1.5V
7	CLKREQ#
8	NC
9	GND
10	NC
11	REFCLK-
12	NC
13	REFCLK+
14	NC
15	GND

Table A.20: CN29: Mini PCIE slot

16	NC
17	NC
18	GND
19	NC
20	NC
21	GND
22	PERST#
23	PERn0
24	+3.3VSB
25	PERp0
26	GND
27	GND
28	+1.5V
29	GND
30	SMB CLK
31	PETn0
32	SMB DAT
33	PETp0
34	GND
35	GND
36	USB D-
37	GND
38	USB D+
39	+3.3V or +3.3VSB
40	GND
41	+3.3V or +3.3VSB
42	NC
43	GND
44	NC
45	NC
46	NC
47	NC
48	+1.5V
49	NC
50	GND
51	NC
52	+3.3V or +3.3VSB
53	NC
54	NC
55	GND
56	GND

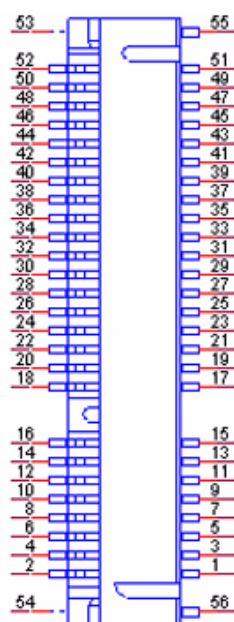
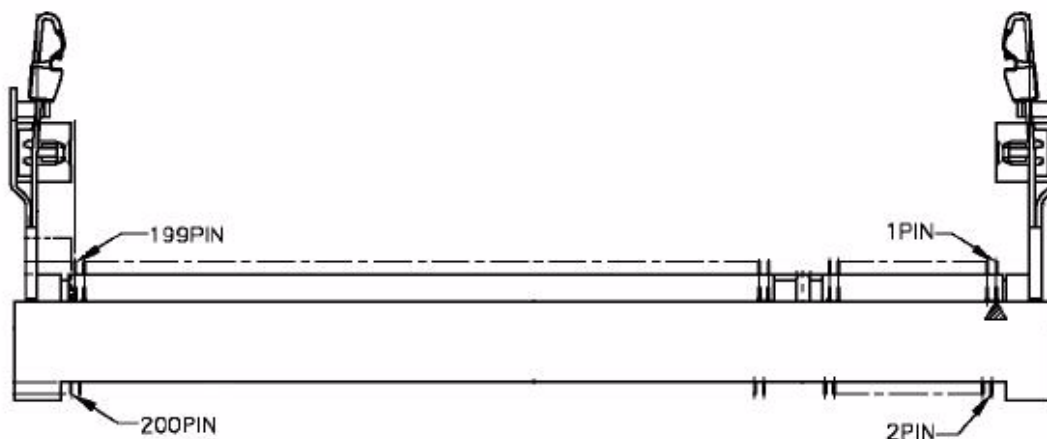


Table A.21: CN30: DDR3 SODIMM

Part Number	1651001904
Footprint	DDR-SODIMM-STD65
Description	SKT DIMM 200P DDR2 H=6.5mm STD SMD WO/Pb
Pin	Pin Name
1	VREF
2	GND
3	GND
4	DQ59
5	DQ63
6	DQ58
7	DQ62
8	GND
9	GND
10	DM7
11	DQS#7
12	GND
13	DQS7
14	DQ57
15	GND
16	DQ56
17	DQ61
18	GND
19	DQ60
20	DQ51
21	GND
22	DQ50
23	DQ55

Table A.21: CN30: DDR3 SODIMM

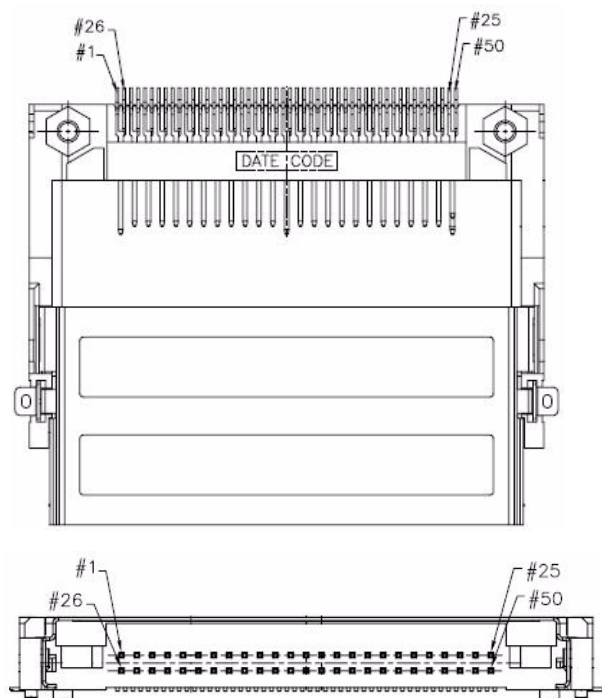
24	GND
25	DQ54
26	DM6

**Table A.22: CN32: CF**

Part Number	1653002919
Footprint	CF_50P_CFCMD-35T15W100
Description	CF Type2 Conn.50P 90D(M) SMD WO/Pb CFCMD-35T15W1
Pin	Pin Name
1	GND
2	D03
3	D04
4	D05
5	D06
6	D07
7	CS0#
8	GND
9	GND
10	GND
11	GND
12	GND
13	+5V
14	GND
15	GND
16	GND
17	GND
18	A02
19	A01
20	A00
21	D00
22	D01
23	D02

Table A.22: CN32: CF

24	NC
25	CD2#
26	CD1#



Appendix **B**

Peripherals Installation Guide

B.1 UTC-500 Peripherals Series Installation Guide

Model	Description
UTC-P01-A0E	2M Camera Module for UTC-500 Series
UTC-P02-A0E	Magnetic Stripe Card Reader for UTC-500 Series
UTC-P03-A0E	RFID Reader for UTC-500 Series
UTC-P06-A0E	Smart Card Reader for UTC-500 Series

Packing List

- UTC-PXX
- CD-Driver
- Cable Clamp x 2

Assemble the UTC-Peripherals

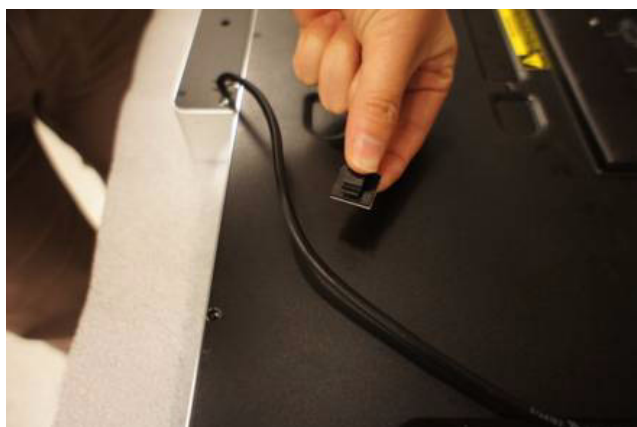
1. Attach the UTC-peripheral to the UTC 500 series side groove.
(The UTC-500's uniquely designed side groove creates an attachment area that runs all around the frame; customer's can easily attach peripherals to it for their applications.)



2. Fasten the 2 screws to fix the peripheral in place.



3. Connect the cable to an I/O port (USB).



4. Choose a location to put the cable clamp and attach the cable to it.



Attaching a peripheral on the top of the unit



Attaching a peripheral on the bottom of the unit



An attachment to the left side

Appendix C

WDT

C.1 Watchdog Timer Sample Code

Watchdog function:

```
;The SCH3114 Runtime base I/O address is A00h
;Setting WatchDog time value location at offset 66h
;If set value "0", it is mean disable WatchDog function.
Superio_GPIO_Port = A00h
mov dx,Superio_GPIO_Port + 66h
mov al,00h
out dx,al
.model small
.486p
.stack 256
.data
SCH3114_IO EQU A00h
.code
org 100h
.STARTup
;=====
;47H
;enable WDT function bit [0]=0Ch
;=====
mov dx,SCH3114_IO + 47h
mov al,0Ch
out dx,al
;=====
;65H
;bit [1:0]=Reserved
;bit [6:2]Reserve=00000
;bit [7] WDT time-out Value Units Select
;Minutes=0 (default) Seconds=1
;=====
mov dx,SCH3114_IO + 65h ;
mov al,080h
out dx,al
;=====
;66H
;WDT timer time-out value
;bit[7:0]=0~255
;=====
mov dx,SCH3114_IO + 66h
mov al,01h
out dx,al
;=====
;bit[0] status bit R/W
;WD timeout occurred =1
```

```
;WD timer counting = 0  
;=====  
mov dx,SCH3114_IO + 68h  
mov al,01h  
out dx,al  
.exit  
END
```

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